TALBERT, ELISABETH ELAINE. Teaching Three Techniques of Behavior Modification to Nonprofessionals. (1973) Directed by: Donald G. Wildemann. Pp. 47.

Modeling, lecturing, and a combination of modeling and lecturing were compared to a no-treatment control group to see which method was the most effective in teaching applied behavioral techniques to nonprofessionals. The behavioral techniques taught were praising a child for appropriate behaviors; ignoring a child for inappropriate, nonaggressive behaviors; and placing a child in timeout for inappropriate, aggressive behaviors. Subjects were college students unfamiliar with applied behavioral techniques.

Both overall posttest responses and responses in the three subcategories of "praise," "ignore," and "timeout" showed consistently significant treatment effects. The overall posttest responses and the subcategory of "praise" items showed significant differences between the three experimental groups and the control group but no significant differences among the experimental groups. Significant differences were found between the control group and the two experimental groups, lecturing and lecturing-modeling, on "ignore" items; and between the control group and the lecturing-modeling group on "timeout" items. Several implications of these results were discussed.

TEACHING THREE TECHNIQUES OF BEHAVIOR MODIFICATION TO NONPROFESSIONALS

by

Elisabeth Elaine Talbert

A Thesis Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Greensboro
1973

Approved by

Donald R. Wildeman
Thesis Adviser

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty of the Graduate School at The University of North Carolina at Greensboro.

Thesis Adviser Donald S. Williamson

Committee Members Marilyn T. Erickson

Lenton Smith

December 14, 1973
Date of Acceptance by Committee

ACKNOWLEDGMENTS

I wish to extend my appreciation and thanks to the following people and agencies for making this study possible: To Dr. Donald G. Wildemann for deriving the final design of this study and giving numerous hours to perfecting the video tape sequences and script of this study; to Dr. Marilyn T. Erickson for her helpful feedback concerning the preliminary proposal and text of the thesis and for her presentation of one video tape for use in the thesis; to Dr. Kendon R. Smith for his helpful comments and criticisms on the preliminary proposal and the present form of this study's text; to Dr. P. Scott Lawrence for the loan of his video tape recorder and monitor in both the filming and actual running of the thesis; to Susan Corriher, a graduate student at UNC-G, for help in filming the video tape sequences; to Ed Bowles, a graduate student at UNC-G, for appearing as the "child psychologist" in the two video-taped lectures; to Dr. David R. Soderquist for his helpful comments concerning the statistical design of this study; to the Institute of Child and Family Development for the loan of a place to film the video tape sequences; to the Department of Psychology, UNC-G for the loan of their video tape equipment in the filming of the

behavior sequences; and to all the kindergarten children in the Spring of 1973, attending the Experimental Kindergarten sponsored by the Institute of Child and Family Development for their excellent performances as child models in the video tape behavior sequences.

TABLE OF CONTENTS

Page

APPENDIX

LIST OF TABLES

CHAPTER I

INTRODUCTION

Most of the recent research in the area of behavior modification has been concerned with teaching applied behavioral principles to nonprofessionals. While numerous techniques have been used to teach these principles, little systematic research has been conducted on which teaching methods are most effective. The present study was designed to compare the effectiveness of two of these teaching methods, modeling and lecturing.

Many of the existing studies concerned with teaching nonprofessionals how to apply behavior modification principles and techniques are based on the assumption that teachers, family members, and friends of a therapy client can learn to apply behavioral techniques in such a way as to aid in changing the behavior of the client in the direction designated appropriate by the therapist. If significant others in the client's environment can learn to carry out behavior therapy suggestions made by the therapist, the client will receive therapeutic attention continuously as opposed to only one or two hours a week, as is the case when only the professional therapist is involved. Therefore, it is not surprising that this tendency to train significant others is evident in the current

research in this area. Recent studies concerned with teaching applied behavior principles to nonprofessionals have employed parents (Wahler, 1969), teachers (Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis & Porcia, 1971), institutional attendants (Gardner, 1972), college students (Thorne & Shinedling, 1970), and even elementary students (Surratt, Ulrich & Hawkins, 1969) to change clients' behaviors.

These studies have also used a variety of training techniques, both singly and in combination. For example, Patterson (1969) used both a programmed textbook and discussions with mothers to aid them in applying behavior modification techniques with their children. Wahler (1969), on the other hand, emphasized the use of verbal explanation of principles and procedures and told the parents whom he was instructing "to think of themselves as mechanical reinforcement and punishment dispensers, operable by specific actions of their children" (Wahler, 1969, p. 162). Hall and his colleagues used a combination of lectures, films, quizzes, and discussion groups to shape up parents to be behavior modifiers (Hall, Axelrod, Tyler, Grief, Jones & Robertson, 1972). Thus, the literature suggests numerous techniques to teach these principles. However, little systematic research has been conducted comparing the various teaching methods.

Indeed, only two studies have attempted to compare various techniques used to teach applied behavior principles to nonprofessionals. Peine (1971) compared three procedures for training parents in the principles and applications of behavior modification. The procedures were a lecture-demonstration, a contingency management program conducted by the parents, and an in-class program for training parents individually. Peine found that all three groups showed equal comprehension of behavior modification terminology; however, the contingency management program led to more use of behavior modification techniques by the parents exposed to this technique.

Gardner (1972), in another study contrasting ways of teaching applied behavior principles to nonprofessionals, compared role-playing to lectures. To obtain pretest and posttest measures, Gardner used the Training Proficiency Scale (Gardner, 1970), which measures skill in using behavior modification techniques, and the Behavior Modification Test (Gardner, Brust & Watson, 1970), which assesses knowledge of behavior modification principles. Gardner's results showed that untrained institutional attendants who were given information about behavior modification through role-playing performed better on the Training Proficiency Scale, and that those who were exposed to behavior modification lectures scored better on the Behavior Modification Test. Thus, role-playing, which

emphasizes and utilizes performance skills, was found to be more effective in teaching the application of behavior modification techniques whereas lecturing, which utilizes verbal skills, was found to be more effective in teaching knowledge of behavior modification principles. As Gardner explains it, ". . .performance skills are best taught within a teaching framework that emphasizes performance skills, while verbal skills are best taught in a framework emphasizing verbal skills" (Gardner, 1972, p. 520).

While role-playing and lecturing may both be effective teaching procedures, much of the recent research has been concerned with a newer training method, symbolic or filmed modeling. Modeling, as a teaching technique, can be divided into two different procedures. The first, live behavior modeling, uses a person who is in the actual presence of the subjects to model the behaviors. The second procedure, symbolic modeling, can employ either a verbal technique which involves accurate verbal descriptions and prompts as to exactly what the modeled behaviors are and the pattern in which they should be omitted or a visual technique involving video tapes of films of the model or models performing the desired behavior (c.f., Bandura, 1969). All of the studies using symbolic modeling cited in this paper, and the symbolic modeling procedure used in the present study, are based on the visual type of symbolic modeling.

Live behavior modeling and symbolic modeling have been contrasted in only one study. In treating snake phobias, Bandura, Blanchard and Ritter (1969) compared the effects of: (a) symbolic modeling (in which the subjects were taught relaxation skills and also were allowed to regulate the film by either starting or reversing it, according to their "anxiety level"); (b) live and sequenced modeling with guided participation; (c) a standard desensitization procedure developed by Wolpe; and (d) a control procedure, involving no treatment. The live and sequenced modeling treatment with guided participation produced the highest percentage of approach responses. Both the live modeling and the symbolic modeling groups had a greater anxiety decrement than either the desensitization group or the control group. In this study the control group was later exposed to the symbolic modeling procedure without the benefit of the relaxation training. After this treatment procedure, the control subjects did not differ from the group exposed to relaxation with symbolic modeling in the number of approach behaviors, but they did require more exposure to the film to reduce their anxiety. Thus, while the Bandura et al. study may indicate that live modeling is superior to symbolic modeling in the treatment of phobic behavior, both techniques seem to be beneficial.

One variable which has been found to influence the effectiveness of modeling as a training procedure is number

of models. Bandura and Menlove (1968) compared two types of symbolic modeling techniques using multiple child models with multiple aversive stimuli (dogs), and a single model with a single aversive stimulus (only one dog). A control group was shown films of Disneyland and Marineland. Both treatment methods were found to be effective in increasing approach behaviors to dogs while the Disneyland films led to no increase in approach behaviors. The symbolic modeling technique of using multiple models with mutliple aversive stimuli was the more effective of the two methods, however. Only children who were exposed to the multiple modeling procedure continued to increase in the number of approach behaviors to dogs in the follow-up period as compared to the immediate posttreatment period. The Bandura and Menlove (1968) study therefore suggests that symbolic modeling is a more efficient training technique when multiple models are employed.

The above studies were concerned with the use of modeling as a direct technique of behavior modification, for example, to decrease phobic behaviors, as opposed to a method of instructing others to use applied behavioral techniques. Hall et al. (1972) used symbolic modeling in combination with discussions, lectures, and quizzes to train parents as observers and experimenters in changing their children's inappropriate behavior. However, no attempt was made to compare the effectiveness of any of these techniques.

Although studies have shown that various methods in combination can be effective in teaching applied behavior principles to nonprofessionals, little research has been conducted comparing the various techniques used in these studies. In training a nonprofessional, does symbolic modeling result in faster learning than lecturing? Perhaps some combination of the two techniques results in the most efficient learning. The present study is designed to answer these questions by comparing the teaching effectiveness of symbolic modeling and lecturing, both separately and in combination.

CHAPTER II
METHOD

Subjects

Subjects were 68 college students (48 females and 20 males) enrolled in an introductory psychology course. All training and testing was conducted during the first week of this course. Only students who answered "no" to the question, "Are you familiar with any principles of what is called behavior modification?," were selected for the study. Subjects signed up for the experiment in groups ranging in size from one to five students.

Apparatus

The equipment used in all training and testing consisted of a video tape recorded (Panasonic Model NV-8100 D) and a television monitor (Panasonic Model AN-69 V).

Procedure

Sessions. Each session lasted about 50 minutes. Each group of subjects, ranging in size from one to five students, participated in only one session. Each group was initially randomly assigned and later assigned according to need to the treatment conditions until 17 subjects had been run in each of the four conditions (See Table 1, p. 9).

TABLE 1

Procedures for the Four Treatment Groups

Groups	Part 1	Part 2	Posttest
Control Group	Behavior Problems	Filmed Behavior Sequences	Filmed Behavior Sequences
Lecturing Group	Behavior Principles	Filmed Behavior Sequences	Filmed Behavior Sequences
Modeling Group	Behavior Problems	Filmed Behavior Sequences with Modeled Consequences	Filmed Behavior Sequences
Combination Lecturing-Modeling Group	Behavior Principles	Filmed Behavior Sequences with Modeled Consequences	Filmed Behavior Sequences

Control group. This group was shown a five-minute, video-taped lecture[1] on various behaviors common to pre-school children presented by a male graduate student who was introduced as a child psychologist (see Appendix A). Following the video-taped lecture, 30 video-taped sequences of behavior were shown (see Appendix C). Because the research design was arranged in such a way that subjects

[1]All video-taped lectures and sequences are available from the author, Department of Psychology, University of North Carolina at Greensboro, Greensboro, North Carolina 27412

viewed each behavior sequence twice, all groups, including the control group, were given two successive presentations of each sequence. These sequences included ten appropriate, ten inappropriate (nonaggressive), and ten inappropriate (aggressive) behaviors presented in a random order. A double presentation of each sequence lasted for approximately 25 seconds. An intertrial interval of approximately 15 seconds with unrecorded video tape separated each set of behavior sequences. After subjects in the control group had been exposed to all 30 behavior sequences, a posttest was administered.

Lecturing group. The lecturing group was shown a five-minute, video-taped lecture on behavior techniques (see Appendix B). This lecture was presented by the "child psychologist" previously mentioned. This lecture emphasized the following points: (a) if you want to increase the frequency of a behavior, attend to it; (b) if you want to decrease the frequency of a behavior that is not physically harmful to others, ignore the behavior; and (c) if you want to decrease the frequency of a behavior that is physically harmful to others, punish the behavior by placing the child in isolation, or timeout. Following this lecture, the 30 video-taped sequences of behavior displayed to the control group were shown. Successive behavioral sequences were separated by an inter-trial interval of approximately 15 seconds filled with unrecorded

video tape. After subjects had been exposed to the 30 sequences, the posttest was administered.

Modeling group. This group was shown the lecture on behaviors common to preschool children used with the control group and the 30 video-taped behavior sequences. Immediately after the second presentation of each behavior sequence, however, subjects in the modeling group were shown a ten-second, video-taped sequence of an adult emitting the appropriate behavioral consequence (see Appendix D). Behavioral sequences were separated by eight-second inter-trial intervals of unrecorded video tape. The posttest was administered after subjects had been exposed to the 30 behavior sequences along with the 30 video-taped modeled consequences.

Combination lecturing-modeling group. This group was shown the behavior techniques lecture used with the lecturing group and the 30 video-taped behavior sequences followed by the appropriate modeled consequences. An eight-second inter-trial interval of unrecorded video tape followed each sequence. Following the presentation of the 30 sequences and the 30 appropriate consequences, the posttest was administered.

Posttest. In the posttest each group was shown 30 new video-taped sequences of behavior emitted by preschool children. The test contained ten appropriate, ten inappropriate (nonaggressive), and ten inappropriate

(aggressive) behaviors presented in a random order (see Appendix E). Each behavior sequence lasted approximately five seconds. Following each sequence, subjects were asked to decide what an adult should do in that particular situation by selecting one of the three alternatives printed on a multiple-choice answer sheet. The positions of the alternatives on these answer sheets were varied in three different random orders (see Appendix F). The three choices were: (a) approach and praise the target child; (b) ignore the target child; and (c) approach the target child without speaking and escort the child to an isolation room. Subjects completed the test when they had made a written response to each of the 30 sequences.

CHAPTER III

RESULTS

Overall Posttest Responses.

For each subject the total number of correct responses on the posttest was computed. The maximum possible score on the posttest was 30 correct responses. Table 2 presents the mean number of correct responses, the range of scores, and the standard deviations within each of the four groups. As Table 2 shows, all experimental subjects had at least 21 out of 30 (70%) of their answers correct, suggesting that the posttest may have produced a ceiling effect in terms of the total number of correct responses.

TABLE 2

Means, Ranges, and Standard Deviations (SDs) for Overall Posttest Responses

Groups	Means	Ranges	SDs
Lecturing	28.00	24-30	1.37
Modeling	28.06	21-30	2.54
Lecturing-Modeling	28.76	25-30	1.40
Control	23.35	17-29	3.96

A one-way analysis of variance was performed on the posttest responses. Table 3 shows the results of this test. As Table 3 indicates, the main treatment effect was significant [$F(3,64)=16.3$, $p<0.01$].

TABLE 3

Analysis of Variance: Overall Posttest Responses

Source	df	MS	F
Treatment	3	105.00	16.3**
Error	64	6.44	

** $p<0.01$

A Scheffé post hoc test was then performed to analyze this main treatment effect. The Scheffé test indicated that while the control group differed significantly from the three experimental groups ($p<0.01$, see Table 4), none of the experimental groups differed significantly from each other.

TABLE 4

Scheffé Post Hoc Test: Overall Posttest Responses

Groups:	Control	Lect.	Mod.	Lect-Mod.	r	Critical Value
Totals:	397	476	477	489		
	—	79**	80**	92**	4	51.99
	—	—	1	13	3	51.99
	—	—	—	12	2	51.99

** $p<0.01$

Thus, this overall analysis indicates that all three training methods, as represented by the three experimental groups, were effective training techniques but that none of the three was significantly superior to any of the others. This finding of no superiority for any of the training methods must, however, be tempered by the fact that the range of correct responses for the three experimental groups was limited. This result, therefore, may have been produced by a ceiling effect.

Three Types of Posttest Items

The 30 posttest items were classified into three different categories based upon the appropriate response to each item. These categories were: (a) "praise" items in which the correct response was "approach and praise the target child;" (b) "ignore" items where the appropriate answer was "ignore the target child;" and (c) "timeout" items in which the correct response was "approach the target child without speaking and escort the child to an isolation room." Each category contained ten items. Separate comparisons were performed on responses to each of these categories.

Table 5 presents the mean correct responses, the ranges, and the standard deviations of scores within each of the groups for the three categories of posttest items. As Table 5 shows, on "praise" items the three experimental groups had at least eight out of ten (80%) of their answers

correct. This finding suggests that the "praise" items may have been the main cause of the overall ceiling effect previously noted. On both "ignore" and "timeout" items, the ranges of correct responses were greater for at least one of the experimental groups. For example, the range of correct responses for the modeling group on "ignore" items was 1 to 10, and for the lecturing group on "timeout" items, the range of correct responses was 4 to 10. The wide range of responses on "ignore" and "timeout" items suggests that items in these categories were better able to discriminate differences between the various teaching methods than were the "praise" items.

TABLE 5

Means, Ranges, and Standard Deviations (SDs) of Three Types of Posttest Responses

	"Praise" Items			"Ignore" Items			"Timeout" Items		
Groups	Means	Ranges	SDs	Means	Ranges	SDs	Means	Ranges	SDs
Lecturing	9.82	8-10	.59	9.71	9-10	.37	8.47	4-10	1.42
Modeling	9.94	9-10	.23	8.94	1-10	2.51	9.18	8-10	.58
Lect.-Mod.	10.00	10-10	.00	9.41	6-10	1.14	9.35	9-10	.55
Control	7.88	3-10	2.29	6.76	0-10	3.31	8.71	7-10	.63

Separate one-way analyses of variance were performed on all three categories of posttest responses. The results can be found in Table 6. Analyses showed that statistically significant treatment effects were obtained for the "praise" items [$F(3,64)=12.78$, $p<0.01$], for the "ignore" items

[$F(3,64)=6.44$, $p<0.01$], and for the "timeout" items [$F(3,64)=3.64$, $p<0.05$]. While these results indicate that the various treatments produced significant results in each category of posttest items, they did not indicate which, if any, of the treatments were most effective. Although there existed the possibility of significance by chance due to the quantity of post hoc comparisons performed, it was decided to chance this possibility in order to derive useful information on which were the most effective treatments. Therefore, Scheffé post hoc tests were performed on the three categories of posttest responses. The results of each of these post hoc comparisons are presented in the following sections.

TABLE 6

Analysis of Variance of Three Types of Posttest Responses

		"Praise" Items		"Ignore" Items		"Timeout" Items	
Source	df	MS	F	MS	F	MS	F
Treatment	3	17.76	12.78**	30.16	6.44**	2.84	3.64*
Error	64	1.39		4.68		.78	

**$p<0.01$

* $p<0.05$

"Praise" items. The Scheffé post hoc test showed that the three experimental groups differed significantly from the control group ($p<0.01$, see Table 7). However, the three experimental groups were not significantly different from each other. The results of this post hoc test and those of the overall posttest were identical in levels of significance between groups. As in the results of the overall posttest, the finding of no superiority for any of the three training methods must be viewed in reference to the limited range of correct "praise" responses for the three experimental groups.

TABLE 7

Scheffé Post Hoc Test: "Praise" Responses

Groups:	Control	Lect.	Mod.	Lect.-Mod.	r	Critical Value
Totals:	134	167	169	170		
	—	33**	35**	36**	4	24.15
	—	—	2	3	3	24.15
	—	—	—	1	2	24.15

**$p<0.01$

"Ignore" items. The results of the Scheffé post hoc test found the lecturing and the combination lecturing-modeling groups to differ significantly from the control group ($p<0.01$, see Table 8). However, the modeling group

was not significantly different from the control group. Also, as in previous comparisons, none of the three experimental groups differed significantly from any other.

TABLE 8

Scheffé Post Hoc Test: "Ignore" Responses

Groups:	Control	Mod.	Lect.-Mod.	Lect.	r	Critical Value
Totals:	115	152	160	165		
	—	37	45**	50**	4	44.28
	—	—	8	13	3	44.28
	—	—	—	5	2	44.28

** $p<0.01$

"Timeout" items. The lecturing-modeling group was the only experimental group found to be significant in relation to the control group when the Scheffé post hoc test was performed ($p<0.05$, see Table 9). Also, as in previous comparisons, there were no significant differences among the three experimental groups.

TABLE 9

Scheffé Post Hoc Test: "Timeout" Responses

Groups:	Lect.	Control	Mod.	Lect.-Mod.	r	Critical Value
Totals:	144	148	156	159		
	___	4	12	15*	4	14.78
	___	___	8	11	3	14.78
	___	___	___	3	2	14.78

*$p<0.05$

CHAPTER IV
DISCUSSION

Although knowledge of the best available methods to train in the techniques of behavior modification would be invaluable in applied settings, few studies have attempted to compare the various methods used in teaching nonprofessionals these applied techniques. The present study was designed to evaluate the effectiveness of the commonly used techniques of lecturing, modeling, and a combination of lecturing and modeling to see which of the three teaching methods was the most effective.

As the overall results indicated, each of these three training methods was an effective technique for teaching behavior modification. Post hoc comparisons within each of the response subcategories, however, suggested that the training methods might differ in their effectiveness. When the posttest was divided into three subcategories, "praise,""ignore," and "timeout" items, the post hoc analysis of the "praise" items showed each of the training methods to be equally effective. Therefore, any of the training methods could be used with equal effectiveness in teaching a nonprofessional to reinforce a child's appropriate behaviors with praise. On the "ignore" items, however, the post hoc analysis suggested that lecturing

and combination lecturing-modeling were the most effective techniques for training naive subjects to extinguish certain undesirable behaviors. Similarly, the post hoc comparison performed on "timeout" items indicated the combination of lecturing-modeling was the most effective technique for teaching subjects to use "timeout" for aggressive behaviors. Thus, the combined lecturing-modeling group was significantly effective in all three posttest categories. Perhaps this result would have been even more pronounced if the ceiling effect, in terms of the large number of correct responses in all conditions, were somehow eliminated.

One obvious candidate for eliminating the ceiling effect would be an in vivo test in which subjects have to apply what they have learned to actual, overt behaviors emitted by children. Because such a test would probably require finer discriminations, the ceiling effect should be eliminated. Furthermore, if both the written and the in vivo posttest were administered, a comparison of these two dependent measures would also provide information as to how predictive a written test is of what will happen in the natural environment. For example, Peine's (1971) study comparing three procedures for training parents in applied behavioral principles showed the procedures to be equally effective on a written posttest. However, the dependent variable of actual use of behavior modification techniques

by parents indicated that one technique was significantly more effective than the others. This finding stresses the importance of using more than one dependent measure in a study and of taking measurements in more than one setting. Unfortunately, there are also a few disadvantages to using in vivo assessment techniques. To present test items in a set order and form, for instance, becomes difficult or impossible in an in vivo situation. Also, once time has passed and events have intervened between the training sessions and the in vivo assessment, the actual variables responsible for the behavior change cannot be adequately ascertained. Thus, while the results of the present study are restricted in that not much can be said about the results in reference to the natural environment, in as much as an in vivo posttest was not used, there are some indications that this latter form of dependent measure has its limitations, also.

Symbolic, or filmed, modeling, as was used in the present study, appears to offer several advantages over live modeling. One advantage of symbolic modeling is that upon various presentations of the test stimuli, the parameters of the stimuli are maintained in a constant order and form. With live symbolic modeling, the parameters of the stimuli are varied upon each presentation of the test items. Symbolic modeling provides more control over the presentation of test stimuli, and, therefore, more

consistency in experimental manipulations. Although the present study had the advantage of experimental control which comes with symbolic modeling, it would nevertheless have been interesting to see if the results of this study would have been the same had live modeling with children and adults been used.

If there were a high degree of transfer between the method of training and testing used in the present study, on one hand, and the speed of training a nonprofessional in using behavior modification in the natural environment, on the other, the techniques used in the present study should have applications both in assessment and in training. As a training tool, the use of video-taped lectures and modeling could enable a nonprofessional to pick up some behavioral skills without a professional having to use his time in instruction and modeling. This procedure could result in a savings, both in cost and in time. As a method of assessment, the video-taped posttest items would more closely approximate an in vivo setting than a written posttest and could perhaps be used to predict those who would perform better in the actual setting. Furthermore, it could be used to determine the more difficult training areas that would not easily generalize in the in vivo situation. Therefore, as a training and assessment technique, symbolic modeling, as used in the present study, appears to have much potential.

A comparison of the behaviors trained, rather than the method used to train these behaviors, provides some possible reasons for the differences that were obtained in the post hoc tests. Although both lecturing and lecturing-modeling produced significant effects in the "ignore" category, only the lecturing-modeling group resulted in a significant effect in the "timeout" category. One possible explanation for this difference may be that aggressive behavior in children, even verbal aggression, tends to be immediately and severely punished in our society. If this were so, then naive subjects would tend to use the most punishing category to deal with verbal aggression. There was some evidence for this hypothesis. Subjects missed "ignore" items almost twice as much as the other two categories, and on these incorrect "ignore" items, subjects tended to choose "timeout" as their response. Therefore, a prior tendency on the part of subjects to use a more severe form of punishment may have also influenced the results of this study.

There is some evidence in the present study that one of the teaching methods may be consistently more effective than the other methods evaluated in this study. The combination lecturing-modeling group was significantly more effective than the control group in all post hoc analyses performed. This was not true of the other two experimental groups, and it suggests that a combination of lecturing and

modeling may be a more effective method of teaching applied behavioral principles than either of the two methods used separately. Judging from the present data, if one has access to both modeling and lecturing techniques, the most successful training technique would probably be to use the two together.

CHAPTER V
SUMMARY AND CONCLUSIONS

Modeling, lecturing, and a combination of modeling and lecturing were compared to a no-treatment control group to see which method was the most effective in teaching applied behavioral techniques to nonprofessionals. The behavioral techniques taught were praising a child for appropriate behaviors; ignoring a child for inappropriate, non-aggressive behaviors; and placing a child in"timeout" for inappropriate, aggressive behaviors. Subjects were college students unfamiliar with applied behavioral techniques.

Both overall posttest responses and responses in the three subcategories of "praise," "ignore," and "timeout" showed consistently significant treatment effects. The overall posttest responses and the subcategory of "praise" items showed significant differences between the three experimental groups and the control group but no significant differences between any of the experimental groups. Significant differences were found between the control group and the two experimental groups, lecturing and lecturing-modeling, on "ignore" items; and between the control group and the lecturing-modeling group on "timeout" items. Several implications of these results were discussed.

BIBLIOGRAPHY

Bandura, A. Principles of Behavior Modification. New York: Holt, Rinehard and Winston, 1969.

Bandura, A., Blanchard, E. B., and Ritter, B. J. The relative efficacy of desensitization and modeling treatment approaches for inducing affective, behavioral, and attitudinal changes. Journal of Personality and Social Psychology, 1969, 13, 173-199.

Bandura, A., and Menlove, F. L. Factors determining vicarious extinction of avoidance behavior through symbolic modeling. Journal of Personality and Social Psychology, 1968, 8, 99-108.

Gardner, J. M. The training proficiency scale: Manual. Columbus, Ohio: St. Joseph Guild (MDP), 1970.

Gardner, J. M. Teaching behavior modification to non-professionals. Journal of Applied Behavior Analysis, 1972, 5, 517-521.

Gardner, J. M., Brust, D. J., and Watson, L. S. A scale to measure proficiency in applying behavior modification techniques to the mentally retarded. American Journal of Mental Deficiency, 1970, 74, 633-636.

Hall, R. V., Axelrod, S., Tyler, L., Grief, E., Jones, F. C., and Robertson, R. Modification of behavior problems in the home with a parent as observer and experimenter. Journal of Applied Behavior Analysis, 1972, 5, 53-64.

Hall, R. V., Fox, R., Willard, D., Goldsmith, L., Emerson, M., Owen, M., Davis, F., and Porcia, E. The teacher as observer and experimenter in the modification of disputing and talking-out behaviors. Journal of Applied Behavior Analysis, 1971, 4, 141-149.

Patterson, G. R. Teaching parents to be behavior modifiers in the classroom. In John D. Krumboltz and Carl E. Thoresen (Eds.), Behavioral Counseling: Cases and Techniques. New York: Holt, Rinehart and Winston, Inc., 1969.

Peine, Hermann A. Effects of training models on the modification of parent behavior. Dissertation Abstracts International, 1971, 32, 1341.

Surratt, Paul R., Ulrich, Roger E., and Hawkins, Robert P. An elementary student as a behavior engineer. Journal of Applied Behavior Analysis, 1969, 2, 85-92.

Thorne, D. Eugene, and Shinedling, Martin. Volunteer student "behavior engineers"; should they attempt to establish or eliminate target behaviors? Mental Retardation, 1970, 8, 9-12.

Wahler, Robert G. Oppositional children: a quest for parental reinforcement control. Journal of Applied Behavior Analysis, 1969, 2, 159-170.

APPENDIX A
THREE CATEGORIES OF BEHAVIORS COMMON TO PRESCHOOL CHILDREN

There are a number of different behaviors--both appropriate and inappropriate--that preschool children have been observed to engage in. However, most of these behaviors can be grouped into three categories. These categories are inappropriate nonaggressive, inappropriate aggressive, and appropriate. In this short lecture we will discuss these three categories and give specific examples of the behaviors which fall into each of these groups.

Inappropriate nonaggressive behaviors are represented by verbal behaviors which fall under the categories of tattletaling, sassing, bragging, begging, threatening, and using negatives a good percentage of the time. Tattletaling can be exemplified by a child running up to the teacher and saying, "Johnny said a bad word." The teacher should discourage behavior such as this, because a child who tattletales often loses the friendship of his peers. Sassing, exemplified by "My Daddy is bigger than your Daddy," and bragging, exemplified by "I have a dog and you don't," hurt the children they are directed to and should not be encouraged by the teacher. Other inappropriate nonaggressive behaviors are represented by begging ("Please,

please let me have another piece of candy."), threatening ("If you don't give me that toy, I will hit you."), and using negatives, or consistently refusing to perform tasks when asked to do so, i.e. always saying "no" to everything. All these behaviors can make life unpleasant for the preschool teacher and the children who do not engage in these behaviors. For this reason, these behaviors should be discouraged.

Aggressive behavior, a more serious form of inappropriate behavior, can be a major problem in preschool settings. It is of importance to decrease this form of behavior in order to protect other children who are usually victims of this behavior. Another reason it is important to stop aggressive behavior at the preschool level is to stop a life-long pattern of aggressive behavior from developing. Furthermore, aggressive behavior has to be eliminated to prevent other children from imitating the aggressive behavior and thereby, creating chaos in the preschool. Various forms of aggressive behavior include the physical and non-verbal behaviors of taking away a toy from a child in a rough manner, biting, tripping, hitting, slapping, scaring, and throwing an object at a child. All these inappropriate, aggressive behaviors can lead to serious problems in a preschool program, especially if they are allowed to occur with a high frequency.

Not all the behaviors of preschool children are inappropriate as you may be beginning to think. Sometimes preschool children behave appropriately by helping each other and being nice to each other. Examples of appropriate behaviors sometimes observed in preschool children are their saying such things to each other as, "You sure look pretty," "I like the way you color," and "That sure is a pretty blouse." Other appropriate behaviors are two children playing together without fighting and making too much noise, sharing their toys, helping each other with work tasks, playing a game together, and assembling a puzzle. These behaviors often appear to occur spontaneously. If these appropriate behaviors occur in a preschool setting with a high frequency, more constructive learning activities can be planned for the children. Appropriate behaviors leading to more constructive learning tasks make the teacher and her aide's work in the preschool more rewarding. On the whole both teachers and children are happier in this type of setting.

The behaviors that preschool children have been observed to engage in have been divided into the three categories, (a) inappropriate nonaggressive, (b) inappropriate aggressive, and (c) appropriate. It was emphasized that if inappropriate nonaggressive behaviors occur with a high frequency in a preschool, these behaviors can create an unpleasant atmosphere for both teachers and children.

If inappropriate aggressive behaviors occur with any frequency in a preschool, chaos can result. However, if appropriate behaviors predominate, the preschool can be a highly pleasant setting for constructive learning activities.

APPENDIX B

THREE APPLIED BEHAVIOR TECHNIQUES WHICH CAN BE USED WITH PRESCHOOL CHILDREN

There are a number of different techniques that a teacher can use in handling appropriate and inappropriate behaviors in a preschool setting. The ways in which the teacher interacts with her preschool children can dramatically influence their behavior with one another. In this short lecture we will discuss three techniques which have been used successfully for increasing appropriate behaviors and decreasing inappropriate behaviors in preschool children.

One way to eliminate mild forms of inappropriate behavior is to ignore such behavior. If a preschool teacher wishes to decrease inappropriate behavior such as one girl telling another girl "your mother is ugly," then the teacher should ignore the girl who made the negative comment and give her attention to the girl receiving the comment, or in other words, give attention only to the "victim" of the verbal attack.

The child who made the negative comment is ignored, because it has been found in behavioral research that this has a punishing effect on the behavior of young children and can cause the undesired behavior to decrease. Therefore,

the child who made the comment "your mother is ugly" would be less likely to repeat the statement to another child in the preschool setting since she had not received any attention for her negativism. Ignoring can be useful in decreasing other mildly negative behaviors such as tattle-taling, sassing, bragging, and begging. Ignoring these mild forms of inappropriate behavior is a successful technique to eliminate this type of behavior.

To eliminate more serious types of inappropriate behavior such as aggressive behavior one needs to do more than simply ignore the behavior. One effective technique to deal with more serious kinds of inappropriate behavior involves putting the child who behaves in this way in an isolation room. If a boy throws a rock at a girl, the teacher should immediately walk over to the boy, take hold of his hand, and escort him to an isolation room for two to five minutes. She should not talk to the child while taking him to the isolation room. At the end of the two to five minutes, a bell should go off, signaling the child that his isolation is over and that he can now rejoin his peers.

This isolation procedure has the technical name of "timeout" and has been found to be very effective in eliminating the serious, inappropriate behavior. It has the advantage of immediately letting the child know he has done something wrong. Also, if the teacher is silent while

escorting him to isolation, he will receive a minimal amount of social attention. In isolation he will be completely without any social attention at all from his teacher and his peers. After the aggressive child has been put in isolation, or "timeout," the teacher can attend to the "victim" of the aggressive act and get her involved in a play activity again. "Timeout", placing a child in an isolation room for two to five minutes following some form of aggressive behavior, is a highly effective method for eliminating serious, inappropriate behavior.

Not all interactions between preschool children are negative as may be inferred from the previous discussion. Sometimes preschool children behave appropriately by helping each other and making kind comments to one another. An adult involved with preschool children would like to increase and maintain this kind of behavior. To insure the steady occurrence of appropriate behavior, she should give her attention and praise to it. For example, if she notices two children sharing blocks and playing happily, she should walk over and say, "Jim and Martha, you are really playing nicely today, sharing the blocks. That makes me very happy." If she hears a boy tell a girl that she is wearing a pretty dress, the teacher should attend to the boy either by telling him she thought it was kind for him to tell Sally that she had on a pretty dress, or if she feels a direct comment like the one just mentioned

might embarrass him, she can simply give her attention to him by mentioning something which she knows he enjoys discussing. Therefore, if an adult wishes to increase appropriate types of behavior, she should give her attention and praise to a child whenever she sees the child engaging in this form of behavior.

The three behavioral techniques just mentioned, (a) not attending to inappropriate,noraggressive behavior, (b) placing a child in isolation for inappropriate, aggressive behavior, and (c) attending to appropriate behavior are methods for adults to use when interacting with preschool children. These methods have proven highly effective and successful in decreasing problematic behaviors and increasing desirable behaviors in preschool children.

APPENDIX C

THIRTY VIDEO-TAPED SEQUENCES OF BEHAVIOR

WITH THEIR BEHAVIOR CLASSES

Behavior Sequences	Behavior Classes
1. Girl playing xylophone; boy*: "That sounds terrible."	Inappropriate, non-aggressive
2. Boy hits girl on head with paper clock; girl says "Ow!"	Inappropriate, aggressive
3. Boy gives girl paper and pencil and says: "Here's a piece of paper."	Appropriate
4. Girl pushes over boy.	Inappropriate, aggressive
5. Boy 1 tells boy 2: "This is my truck; you can't play with it!"	Inappropriate, non-aggressive
6. Boy knocks paper clock out of girl's hands and says, "I'm sorry."	Appropriate
7. Boy slaps book across girl's face.	Inappropriate, aggressive
8. Girl tells boy, "Let's play blocks!"	Appropriate
9. Boy tells girl, "Get away from these blocks!"	Inappropriate, non-aggressive
10. Teacher says, "It's time to stack up the blocks." Girl 1 and girl 2 help each other.	Appropriate

* NOTE: Target children (children whose behavior subjects were to attend to) are underlined for each behavior sequence.

Behavior Sequences	Behavior Classes
11. Boy pulls girl out of chair in rough manner.	Inappropriate, aggressive
12. Boy scribbles on girl's paper and says, "That's an ugly picture!"	Inappropriate, aggressive
13. Boy 1 says to boy 2, "That's a lousy bridge!"	Inappropriate, non-aggressive
14. Girl rams truck into boy's pile of poker chips. Boy says, "Stop it!"	Inappropriate, aggressive
15. Boy tells girl, "Girls can't play with trucks!"	Inappropriate, non-aggressive
16. Boy tells girl, "Your mother is fat!"	Inappropriate, non-aggressive
17. Girl tells boy, "Here's a book. Want to look at it?"	Appropriate
18. Boy tells girl, "Your drawing is ugly!"	Inappropriate, non-aggressive
19. Girl pushes boy's paper off a table. Boy says, "Stop it!"	Inappropriate, aggressive
20. Girl tells boy, "I'm not your friend!"	Inappropriate, non-aggressive
21. Boy says, "Let's change toys." Both laugh.	Appropriate
22. Girl asks boy, "You want me to push you around in your chair?" Both laugh.	Appropriate
23. Girl shakes boy in rough manner and says, "Silly boy!" Boy says, "Stop it!"	Inappropriate, agressive
24. Boy 1 asks boy 2, "Would you like some candy?"	Appropriate

Behavior Sequences	Behavior Classes
25. Boy 1 takes teddy bear from boy 2 and says, "Give me that toy!"	Inappropriate, aggressive
26. Boy asks girl if he can play with xylophone. Girl says, "No!"	Inappropriate, non-aggressive
27. Boy 1 says, "I wish I could build a bridge!" Boy 2 says, "I'll help you."	Appropriate
28. Boy 1 jumps on boy 2. Boy 2 says, "Ow!"	Inappropriate, aggressive
29. Boy 1 says to boy 2, "My daddy is bigger than your daddy!"	Inappropriate, non-aggressive
30. Boy 1 says to boy 2, "You sure can draw well!"	Appropriate

APPENDIX D

THIRTY VIDEO-TAPED SEQUENCES OF BEHAVIOR WITH MODELED CONSEQUENCES

	Behavior Sequences	Modeled Consequences
1.	Girl playing xylophone. Boy* says, "That sounds terrible!"	Teacher attends to girl; ignores boy.
2.	Boy hits girl on head with a paper clock. Girl says "Ow!"	Teacher puts boy in "timeout"
3.	Boy gives girl paper and pencil and says, "Here's a piece of paper."	Teacher praises boy.
4.	Girl pushes boy over.	Teacher puts girl in "timeout".
5.	Boy 1 tells boy 2, "This is my truck; you can't play with it!"	Teacher attends to boy 2; ignores boy 1.
6.	Boy knocks paper clock out of girl's hands and says, "I'm sorry."	Teacher praises boy.
7.	Boy slaps book across girl's face.	Teacher puts boy in "timeout".
8.	Girl tells boy, "Let's play blocks!"	Teacher praises girl.
9.	Boy tells girl, "Get away from these blocks!"	Teacher attends to girl; ignores boy.

* NOTE: Target children (children whose behavior subjects were to attend to) are underlined for each behavior sequence.

Behavior Sequences	Modeled Consequences
10. Teacher says, "It's time to stack up the blocks." Girl 1 and girl 2 help each other put up blocks.	Teacher praises both girls.
11. Boy pulls girl out of chair in rough manner.	Teacher puts boy in "timeout".
12. Boy scribbles on girl's paper and says, "That's an ugly picture!"	Teacher puts boy in "timeout".
13. Boy 1 says to boy 2, "That's a lousy bridge!"	Teacher attends to boy 2; ignores boy 1.
14. Girl rams truck into boy's pile of poker chips. Boy says, "Stop it!"	Teacher puts girl in "timeout".
15. Boy tells girl, "Girl's can't play with trucks!"	Teacher attends to girl; ignores boy.
16. Boy tells girl, "Your mother is fat!"	Teacher attends to girl; ignores boy.
17. Girl tells boy, "Here's a book. Want to look at it?"	Teacher praises girl.
18. Boy tells girl, "Your drawing is ugly!"	Teacher attends to girl; ignores boy.
19. Girl pushes boy's paper off a table. Boy says, "Stop it!"	Teacher puts girl in "timeout".
20. Girl tells boy, "I'm not your friend!"	Teacher attends to boy; ignores girl.
21. Boy 1 says, "Let's change toys!" to boy 2. Both laugh.	Teacher praises boy 1.
22. Girl asks boy, "You want me to push you around in your chair?" Both laugh.	Teacher praises girl.

Behavior Sequences	Modeled Consequences
23. Girl shakes boy in rough manner and says, "Silly boy!" Boy says, "Stop it!"	Teacher puts girl in "timeout".
24. Boy 1 asks boy 2, "Would you like some candy?"	Teacher praises boy 1.
25. Boy 1 takes teddy bear from boy 2 and says, "Give me that toy!"	Teacher puts boy 1 in "timeout".
26. Boy asks girl if he can play with the xylophone. Girl says, "No!"	Teacher attends to boy; ignores girl.
27. Boy 1 says, "I wish I could build a bridge!" Boy 2 says, "I'll help you."	Teacher praises boy 2.
28. Boy 1 jumps on boy 2. Boy 2 says, "Ow!"	Teacher puts boy 1 in "timeout".
29. Boy 1 says to boy 2, "My daddy is bigger than your daddy!"	Teacher attends to boy 2; ignores boy 1.
30. Boy 1 says to boy 2, "You sure can draw well!"	Teacher praises boy 1.

APPENDIX E

THIRTY VIDEO-TAPED POSTTEST SEQUENCES OF BEHAVIOR WITH THEIR BEHAVIOR CLASSES

Behavior Sequences	Behavior Classes
1. Girl 1 asks girl 2,* "What are you doing?" Girl 2 says, "None of your business!"	Inappropriate, non-aggressive
2. Boy hits girl over the head with a paper clock. Girl says, "Ouch!"	Inappropriate, aggressive
3. Boy 1 says, "Boo!" to boy 2. Boy 2 looks startled.	Inappropriate, aggressive
4. Boy 1 gives book to boy 2 and says, "Here's a good book."	Appropriate
5. Boy tells girl, "You have a pretty shirt on!"	Appropriate
6. Girl 1 slaps girl 2. Girl 2 says, "Ow!"	Inappropriate, aggressive
7. Girl 1 tells girl 2, "I have a hat and you don't"	Inappropriate, non-aggressive
8. Girl 1 takes hat from girl 2. Girl 2 looks surprised.	Inappropriate, aggressive
9. Boy helps girl with coat and says, "I'll help you."	Appropriate
10. Girl tells boy, "You are a sissy!"	Inappropriate, non-aggressive

* NOTE: Target children (children whose behavior subjects were told to attend to) are underlined for each behavior sequence.

Behavior Sequences	Behavior Classes
11. Girl 1 asks girl 2, "Would you like to wear my hat?" Girl 2 says, "Yes."	Appropriate
12. Girl 1 pulls girl 2's hair. Girl 2 says, "Ow!"	Inappropriate, aggressive
13. Girl tells boy, "Sean, you're crazy!"	Inappropriate, non-aggressive
14. Girl 1 kicks girl 2. Girl 2 says, "Ow!"	Inappropriate, aggressive
15. Girl 1 tells girl 2, "That's a silly hat!"	Inappropriate, non-aggressive
16. Girl 1 asks girl 2, "Can I have some candy?" Girl 2 says, "No!"	Inappropriate, non-aggressive
17. Girl 1 asks girl 2, "Would you like to play with this?" Girl 2 says, "Yes, thank you."	Appropriate
18. Boy pushes girl off blocks. Girl says, "Stop it!"	Inappropriate, aggressive
19. Boy tells girl, "Amy, I don't like you!"	Inappropriate, non-aggressive
20. Girl runs up and knocks down boy's blocks. Boy says, "Stop it, Amy!"	Inappropriate, aggressive
21. Girl drops pencil. Boy picks it up and says, "You dropped your pencil. Here you go."	Appropriate
22. Girl 1 tells girl 2, "Your shirt is ugly!"	Inappropriate, non-aggressive
23. Boy looking through magnifying glass at girl tells the girl, "You are pretty!"	Appropriate
24. Girl tells boy, "I'm having a party and you can't come!"	Inappropriate, non-aggressive

Behavior Sequences	Behavior Classes
25. Girl 1 says, "I can't get up!" Girl 2 says, "I'll help you!" and does help.	Appropriate
26. Boy 1 pulls down boy 2. Boy 2 says, "Ow!"	Inappropriate, aggressive
27. Girl tells boy, "Your coat is dirty!"	Inappropriate, non-aggressive
28. Girl 1 tells girl 2, "I'll brush your hair for you!" and does.	Appropriate
29. Boy 1 asks boy 2, "Can I have some candy?" Boy 2 says, "Yeah!" and gives him some.	Appropriate
30. Girl 1 hits girl 2 in back with paper clock. Girl 2 says, "Ouch!"	Inappropriate, aggressive

APPENDIX F

EXAMPLES OF THE THREE VARIATIONS OF ITEM ARRANGEMENTS ON THE THREE TYPES OF ANSWER SHEETS

Form A

___(a) ignore the target child
___(b) approach and praise the target child
___(c) approach the target child without speaking and escort the child to an isolation room

Form B

___(a) approach and praise the target child
___(b) ignore the target child
___(c) approach the target child without speaking and escort the child to an isolation room

Form C

___(a) approach and praise the target child
___(b) approach the target child without speaking and escort the child to an isolation room
___(c) ignore the target child